

Lesson 3-5

Solving Addition Equations

Lesson Objective To use subtraction to solve equations	NAEP 2005 Strand: Algebra Topic: Equations and Inequalities Local Standards: _____
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Vocabulary and Key Concepts

Subtraction Property of Equality

If you the same value from each side of an equation, the two sides remain equal.

Arithmetic

$$2 \cdot 3 = 6, \text{ so } 2 \cdot 3 - 4 = 6 - \square.$$

Algebra

$$\text{If } a = b, \text{ then } a - c = b - \square.$$

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Inverse operations are _____

Example

Solving Equations by Subtracting Solve $h + 9 = 14$.

Get h alone on one side of the equation.

$$\begin{array}{r} h + 9 = 14 \\ - \square - \square \\ \hline \end{array}$$

$$h = \square$$

Check $h + 9 = 14$

$$\square + 9 \stackrel{?}{=} 14$$

$$\square = 14 \checkmark$$

← Subtract from each side to undo the and get h by itself.

← Simplify.

← Check your solution in the original equation.

← Substitute for h .

Quick Check

1. Solve $w + 4.3 = 9.1$. Check the solution.

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Example

- ② **Growth** Rita's height in first grade was 44 inches. In the fourth grade, Rita's height was 51 inches. How many inches did Rita grow between the first and fourth grades?

Height in fourth grade	
Height in first grade	Inches grown

Let h = the number of inches grown.

51	

The equation $\square + \square = \square$ models this situation.

$$44 + h = 51$$

$$44 + h - \square = 51 - \square$$

← Subtract \square from both sides
to undo the \square .

$$h = \square$$

← Simplify.

Rita grew \square inches.

Quick Check

2. A cat has gained 1.8 pounds in a year. It now weighs 11.6 pounds. Write and solve an equation to find how much it weighed one year ago. Check the solution.

Homework Exercises

Directions: Please show your work and check for each equation you solve.

1)	2)	3)
<div><div><div>1)</div><div>$38 + b = 42$</div><div>$b = \underline{\hspace{2cm}}$</div></div><div><div>Solve</div><div>Check</div></div></div>	<div><div><div>2)</div><div>$m + 7.3 = 9.1$</div><div>$m = \underline{\hspace{2cm}}$</div></div><div><div>Solve</div><div>Check</div></div></div>	<div><div><div>3)</div><div>$12.4 = 9 + t$</div><div>$t = \underline{\hspace{2cm}}$</div></div><div><div>Solve</div><div>Check</div></div></div>

Homework Exercises

Directions: Please show your work and check for each equation you solve.

4) Write and solve an equation. Then check your solution.

The height of the male giraffe in one zoo is 17.3 feet. The male is 3.2 feet taller than the female giraffe. How tall is the female giraffe?

Equation = _____

Solve

Check

5) Write and solve an equation. Then, check your solution.

Three of the top best-selling record albums of all time are Michael Jackson's *Thriller* (24 million copies), Fleetwood Mac's *Rumours* (17 million copies), and Boston's *Boston* (b million copies). The three albums sold a combined total of 56 million copies. How many copies of *Boston* were sold?

Equation = _____

Solve

Check